

Claims

We claim:

1. A carrier medium comprising program instructions, wherein the program instructions are executable to implement:
 - 5 displaying a display window comprising a plurality of graphical program nodes for use in a graphical program; wherein the plurality of graphical program nodes comprise a hierarchy of graphical program nodes, wherein said hierarchy comprises:
 - 10 a first plurality of function nodes displayed in the display window, wherein each function node corresponds to a respective functionality; and a second plurality of property nodes displayed in the display window, wherein each property node corresponds to a respective one of at least a subset of the plurality of function nodes, wherein each property node is displayed proximate to said 15 respective one of the at least a subset of the plurality of function nodes.
2. The carrier medium of claim 1, wherein each of the first plurality of function nodes comprises a polymorphic function node; and
 - 20 wherein each polymorphic function node corresponds to a respective generic functionality, wherein each function node is type-switchable between each of a plurality of function node types, and wherein each function node type corresponds to a respective specific functionality.
- 25 3. The carrier medium of claim 2, wherein each of the first plurality of function nodes has a default function node type, and wherein the default function node type corresponds to a respective default specific functionality for the function node.

4. The carrier medium of claim 1,
wherein the first plurality of function nodes are organized in the display window
in accordance with one or more of:

5 order of use in a typical graphical program development session;
frequency of use in a typical graphical program development session; and
functional relationships among the first plurality of function nodes.

10 5. The carrier medium of claim 1,
wherein the first plurality of function nodes comprises two or more of:
a channel creation node;
a read node; and
a write node.

15 6. The carrier medium of claim 5,
wherein the first plurality of function nodes further comprises:
a wait until done node.

20 7. The carrier medium of claim 5,
wherein the two or more of the channel creation node, the read node, and the write
node comprise a primary set of function nodes.

25 8. The carrier medium of claim 7,
wherein the first plurality of function nodes further comprises one or more of:
a timing node;
a triggering node;
a start node;
a stop node; and
a clear node.

9. The carrier medium of claim 8,
wherein the one or more of the timing node, the triggering node, the start node,
the stop node, and the clear node comprise a secondary set of function nodes; and
wherein the primary set of function nodes and the secondary set of function nodes
5 are displayed in the display window in respective groups.

10. The carrier medium of claim 9, wherein, in displaying the primary set of
function nodes and the secondary set of function nodes in the display window in
respective groups, the primary set of function nodes is displayed in a first row in the
10 display window and the secondary set of function nodes is displayed in a second row in
the display window.

11. The carrier medium of claim 9, wherein, in displaying the primary set of
function nodes and the secondary set of function nodes in the display window in
15 respective groups, the primary set of function nodes is displayed in a first column in the
display window and the secondary set of function nodes is displayed in a second column
in the display window.

12. The carrier medium of claim 1,
20 wherein each of the second plurality of property nodes comprises a function
specific property node corresponding to a respective function; and
wherein each function specific property node comprises one or more parameters
for configuring corresponding attributes for the graphical program.

25 13. The carrier medium of claim 12, wherein the second plurality of property
nodes comprises two or more of:
a channel property node;
a timing property node;
a triggering property node;

a read property node; and
a write property node.

14. The carrier medium of claim 13, wherein, in each property node being
5 displayed proximate to the respective one of the at least a subset of the plurality of
function nodes, each property node is displayed in one of:

a common row with the respective one of the at least a subset of the plurality of
function nodes; and

10 a common column with the respective one of the at least a subset of the plurality
of function nodes.

15. The carrier medium of claim 1,
wherein each function node comprises a function node icon, and wherein the
function node icon comprises a first image;
wherein each property node comprises a property node icon and wherein the
function node icon comprises a second image; and
wherein the second image comprises a version of the first image, indicating the
correspondence between the property node and the corresponding function node.

20 16. The carrier medium of claim 1, wherein the program instructions are
further executable to implement:

displaying one or more tool icons in the display window, wherein each tool icon
represents a respective graphical program development tool, and wherein each tool icon is
user-selectable to invoke the respective graphical program development tool.

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17. The carrier medium of claim 1, wherein the program instructions are
further executable to implement:

displaying one or more function palette icons in the display window, wherein each function palette icon represents a respective sub-palette of one or more additional function nodes and/or one or more additional function palettes.

5 18. The carrier medium of claim 17, wherein the one or more function palette icons are user-selectable to invoke display of one or more of:

 a palette of function nodes related to advanced device configuration;

 a palette of function nodes related to advanced task configuration; and

10 a palette of one or more additional sub-palettes comprising miscellaneous advanced function nodes.

19. A graphical program node palette, comprising:

 a display window; and

15 a plurality of graphical program nodes for use in a graphical program, wherein the plurality of graphical program nodes are displayed in the display window;

 wherein the plurality of graphical program nodes comprise a hierarchy of graphical program nodes, wherein said hierarchy comprises:

 a first plurality of function nodes displayed in the display window, wherein each function node corresponds to a respective functionality;

20 a second plurality of property nodes displayed in the display window, wherein each property node corresponds to a respective one of at least a subset of the plurality of function nodes, wherein each property node is displayed proximate to said respective one of the at least a subset of the plurality of function nodes.

25 20. The graphical program node palette of claim 19,

 wherein each of the first plurality of function nodes comprises a polymorphic function node; and

 wherein each polymorphic function node corresponds to a respective generic functionality, wherein each function node is type-switchable between each of a plurality

of function node types, and wherein each function node type corresponds to a respective specific functionality.

21. The graphical program node palette of claim 19,
5 wherein each of the second plurality of property nodes comprises a function specific property node corresponding to a respective function; and
wherein each function specific property node comprises one or more parameters for configuring corresponding attributes for the graphical program.

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22. A carrier medium comprising program instructions, wherein the program instructions are executable to implement:

displaying a display window comprising a plurality of graphical program nodes for use in a graphical program;

15 wherein the plurality of graphical program nodes comprise a hierarchy of graphical program nodes, wherein said hierarchy comprises:

20 a first plurality of polymorphic function nodes displayed in the display window, wherein each polymorphic function node corresponds to a respective generic functionality, wherein each function node is type-switchable between each of a plurality of function node types, wherein each function node type corresponds to a respective specific functionality; and

25 a second plurality of property nodes displayed in the display window, wherein each property node corresponds to a respective one of at least a subset of the plurality of polymorphic function nodes, wherein each property node is displayed proximate to said respective one of the at least a subset of the plurality of polymorphic function nodes.

23. A carrier medium comprising program instructions, wherein the program instructions are executable to implement:

displaying a display window comprising a plurality of graphical program nodes for use in a graphical program;

5 wherein the plurality of graphical program nodes comprise a hierarchy of graphical program nodes, wherein said hierarchy comprises:

a first plurality of function nodes comprising a generic read node and a generic write node; and

10 a second plurality of property nodes displayed in the display window, wherein each property node corresponds to one of the generic read node or the generic write node;

wherein the second plurality of property nodes comprises one or more read property nodes associated with the generic read node and one or more write property nodes associated with the generic write node.

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24. A palette of graphical program nodes, comprising:

a display window, operable to display a plurality of graphical program nodes for use in a graphical program;

20 a plurality of polymorphic function nodes displayed in the display window, wherein each polymorphic function node corresponds to a respective generic functionality, wherein each function node is type-switchable between each of a plurality of function node types, wherein each function node type corresponds to a respective specific functionality; and

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25. The palette of claim 24, further comprising:

a plurality of property nodes displayed in the display panel, wherein each property node corresponds to a respective one of at least a subset of the plurality of polymorphic function nodes; and

wherein each property node is displayed proximate to said respective one of the at least a subset of the plurality of polymorphic function nodes.